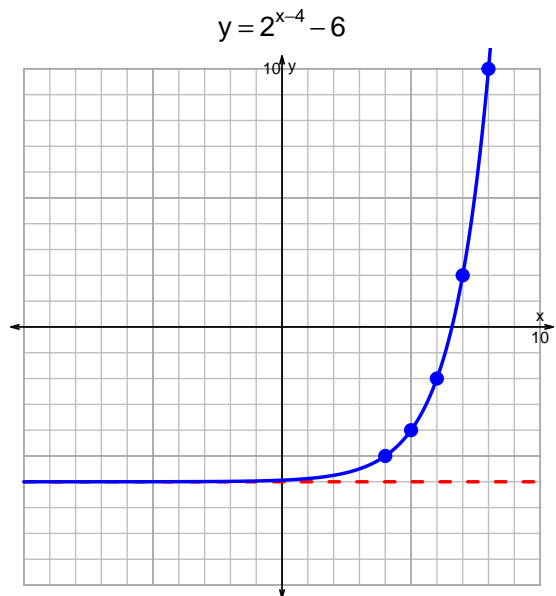
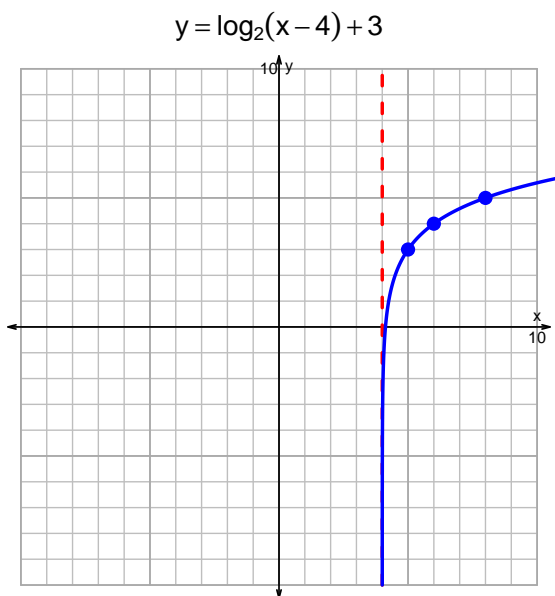


Name: _____

Date: _____

s18QUIZ: EXP LOG (SOLUTION v112)

1. Graph $y = \log_2(x - 4) + 3$ and $y = 2^{x-4} - 6$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$29 = \left(\frac{7}{5}\right) \cdot 2^{3t/4}$$

Divide both sides by $\frac{7}{5}$.

$$\frac{29 \cdot 5}{7} = 2^{3t/4}$$

Take log, base 2, of both sides.

$$\log_2 \left(\frac{29 \cdot 5}{7} \right) = \frac{3t}{4}$$

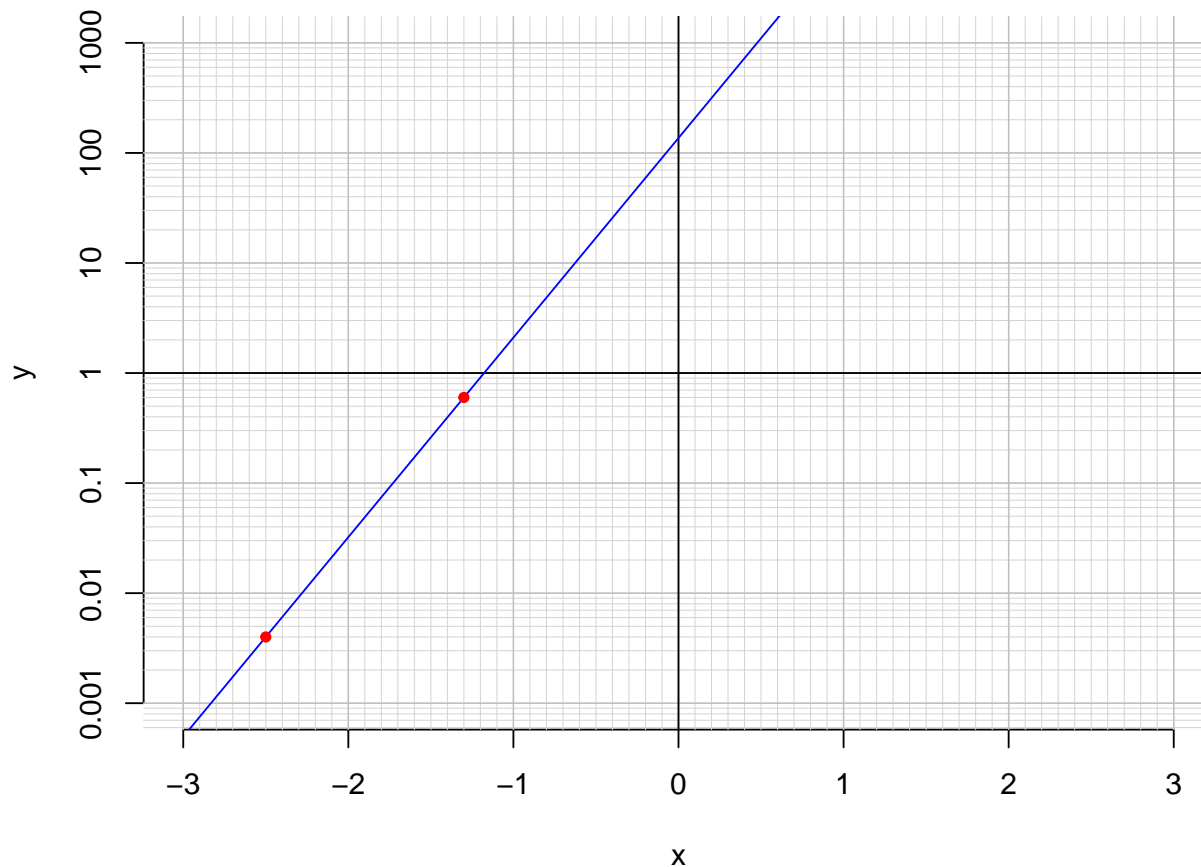
Divide both sides by $\frac{3}{4}$.

$$\frac{4}{3} \cdot \log_2 \left(\frac{29 \cdot 5}{7} \right) = t$$

Switch sides.

$$t = \frac{4}{3} \cdot \log_2 \left(\frac{29 \cdot 5}{7} \right)$$

3. An exponential function $f(x) = 137 \cdot e^{4.18x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(-1.3)$.

$$f(-1.3) = 0.6$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{1}{4.18} \cdot \ln\left(\frac{x}{137}\right)$$

- c. Using the plot above, evaluate $f^{-1}(0.004)$.

$$f^{-1}(0.004) = -2.5$$